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Internal and External Factors Influencing Capital Structure of Indonesian Companies on 2002-2016

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Abstract

This study examines about internal and external factors of capital structure of Indonesian companies. The samples are Indonesian company listed in LQ45 Index. However, there are only six company that consistently in LQ45 Index for the 15 consecutive years. There are determinants are fully out of company control, such as stock market condition (including annual stock return and annual market index return), debt market condition (including 1-year vs 10-year yield spread), and macroeconomic condition. There are also determinants that partly or completely influence by company's strategy, such as profitability, company size, and company growth (including change in assets and capital expenditure to asset ratio). The result of the research is internal factors has significant relationship to financial leverage, since there are two variables that has significant influence to dependent variable. While there are no variables from external factors that have significant influence to dependent variable. The research also found that there are only 2 out of 9 independent variables that has significant influence to dependent variable. Profitability and firm size has significant influence to financial leverage. Though only two variables that has significant influence to financial leverage, the altogether 9 (nine) independent variables has significant influence to financial leverage.

Keywords: internal factors, external factors, capital structure

Introduction

Capital structures has been a subject for studies in decades. Researchers have different approach in explaining factors that impact to capital structure ratio. This study has a different approach on how to see capital structure and its benefit from certain combination of debt and equity.

As a stock market in Indonesia, Indonesian Stock Exhchange (IDX) is home for 547 public company in Indonesia to raise funding. As of May, 19 2017, the market capitalization reach IDR 6,308 trillion. There is an index capturing the whole company activities in IDX, it called Jakarta Composite Index (JCI). Aside from JCI, there is index that captures the performance of 45 most liquid companies listed on the Indonesia Stock Exchange (Indonesia Stock Exchange). LQ45 Index members, which all of companies also member of JCI, are significant for the whole Indonesian stock market, since in covers at least 70% of market capitalization. As the LQ45 index consist of most liquid common stock,

the company that listed in the index can have better capital access to the market, if they need more funding.

Company can make decision from where the financing come from, sourced from debt or equity. The proportion between debt and company will be a strategic decision that will create certain value to the company. The decision of debt and equity portion will be easier if the company have sufficient access to the capital market. Moreover, for company that listed in LQ45 index, as they have access to a lower interest rate for debt or access to investors in stock market due to its trading demand by investors. Studying some determinant factors of capital structure within LQ45 members will give more insight whether the companies can leverage their position to adjust leverage ratio accordingly.

LQ45 Index constituent are the most heavily traded in Indonesian Stock Market, the company can easily align its capital structure to desire ratio. The leverage ratio of company that consistently listed in LQ45 index for 15 years, should be a response to one or some determinants factors, either from internal or external. The LQ45 constituent member can get benefit to raise capital through stocks to reduce the leverage ratio if compare to the other public listed company or the company outside capital market.

Several studies about capital structure has been conducted. profitability, firm size, company growth, stock market condition, bond market condition, and macroeconomic condition are some determinants factors of company leverage ratio that has been studied by many scholars.

In addition, the research would like to divide determinants factors into two groups, internal determinant factors (profitability, firm size, and growth) and external determinants factors (stock market condition, bond market condition, and macroeconomic condition). Further, the research not only to study the determinant factors of company leverage in LQ 45 constituent, but also would like to explore more whether the company leverage get more influence from internal factors or the company simply adjusting leverage ratio responding external determinant factors.

By theory, capital structure will create value to the company, regardless any capital structure theory approach. The company, who listed in LQ45 index in last 15 years, should be able to using its position to reach optimal capital structure decision. If the companies unable to use its position in LQ45 index, they can not create value through the right-hand side of balance sheet.

The research will study about six determinant factors of company leverage. The research question as follow: How the determinant factors influence leverage ratio of Indonesia companies that listed in LQ45 Index within 15 consecutive years?

Further there are research questions for each determinants factors:

- Is there any relationship between profitability and company leverage?
- Is there any relationship between firm size and company leverage?
- Is there any relationship between company growth and company leverage?
- Is there any relationship between stock market condition and company leverage?
- Is there any relationship between debt market condition and company leverage?
- Is there any relationship between macroeconomic condition and company leverage?

Literature Review

Modigliani-Miller theory (MM Theory) is one of earliest study of capital structure. MM-Theory introduce about the cost of capital to acquire assets with uncertain yields (Modigliani & Miller, 1958). Further, Modigliani and Miller said that the decision about capital structure will consider maximization of profit or maximization of market value.

From the study of Taggart (1985), “Modigliani-Miller theorem implies that the aggregate supply and demand for corporate debt coincide and that both are perfectly elastic. Supply is perfectly elastic because corporations can costless transform their financing mixes from all equity to any degree of leverage”. Further, Modigliani and Miller said that assets of corporation are worth acquiring if those assets will increase the net profit of the share holders. Once the yield of assets above the interest rate, the company’s net profit will be increased. According to Modigliani and Miller “the cost of capital is

equal to the rate of interest on bonds, regardless of whether the funds are acquired through debt instruments or through new issues of common stock".

Modigliani and Miller (1958) have three proposition related to cost of capital:

- Proposition I. Cost of capital is the average cost of capital to any firm is completely independent of its capital structure and is equal to the capitalization rate of a pure equity stream of its class. Expected return from company investment is the sum of the interest paid and expected net stock- holder income. The increased cost of borrowed funds as leverage increases will tend to be offset by a corresponding reduction in the yield of common stock
- Proposition II. Second proposition adds bond rate and ratio in expected yield of share o stock. The expected yield of a share of stock is equal to the appropriate capitalization rate for a pure equity stream in the class, plus a premium related to financial risk equal to the debt-lo-equity ratio times the spread between capitalization rate of stock and bond rate.
- Proposition III. Regardless of the financing used, the marginal cost of capital to a firm is equal to the average cost of capital, which is in turn equal to the capitalization rate for an unlevered stream in the class to which the firm belongs.

Determinants of Capital Structure

Empirical study conducted by Parsons and Titman (2009) highlight some determinant factors of target leverage such as taxes, cash flow volatility, company size, asset tangibility, market to book ratio, product uniqueness, industry effect, and firm fixed effects. Parsons and Titman also highlight the factors determinants that can influence leverage deviate from its target, such as profitability, market timing, stock returns, and managerial preferences.

A research conducted by Titman and Wessels (1988) focus to some determinants factors such as collateral value of assets, non-debt-tax shields, growth, product/service uniqueness, industry classification, size, volatility of earnings, and profitability. To measure capital structure, Titman and Wessels (1988) consider to use several leverage ratio, such as long-term, short-term, and convertible debt divided by market and by book values of equity.

Frank and Goyal (2009) research 14 (fourteen) determinant factors of capital structure, such as profitability, firm size, growth, industry condition, nature of assets, taxes, risk, supply-side factors, stock market condition, debt market condition, macroeconomic condition, volatility, and market to book value ratio. Most reliable factors for explaining market leverage are: median industry, market-to-book assets ratio, tangibility profits, log of assets, and expected inflation.

According previous research, some determinant can be divided by two categories, first factors that come within the company or internal factors and the second is factors that come from external.

Determinants of Capital Structure from Internal

There are some factors that influence company's capital structure. The factors as follow:

a) Profitability

Profitability will determine the company's capital structure. From perspective of pecking order, the capital of the firms first coming from retained earnings, second from debt, and third from issuing new equity (Myers S. C., 2001, p. 81). If the company have sufficient profit, it will have a chance to retained some of It and determine the following years capital structure. Frank and Goyal (2009, p. 7) also add, if investments and dividends are fixed, then more profitable firms will become less levered over time.

Profitable firms face lower expected costs of financial distress and in the other hand find interest tax shields more valuable by raising debt, if we see from trade of perspective (Myers S. C., 2001, p. 81). In circumstances of profitable firms, according to Welch (2004, p. 117) "the

managers would not so much have "acted" to lower their debt ratios (by issuing more net equity) when profitability increased", consequently profitability will influence capital structure if the dividend payout is fixed.

b) Firm size

According to Parsons and Titman, firm size is found in many studies to be positively related to leverage although appears somewhat weaker than other determinants factors (2009, p. 17). In terms of firm's size, the larger of company's assets will impact to lower default risk (Frank & Goyal, 2009, p. 7). The trade-off theory perspective according to Frank and Goyal (2009, p. 7), if the default or distress cost is lower, a more mature firms to have relatively more debt. Large firms tend to be more diversified and have less possibility to bankruptcy, therefore the cost of issuing debt and equity securities is also related to firm size (Titman & Wessels, 1988, p. 6).

Firm size from pecking order theory is usually predicting inverse relation with company's leverage and firm age (Frank & Goyal, 2009, p. 8). Since the large firm usually have been longer around, they will have opportunity to increase retained earning over the time.

c) Growth

Frank and Goyal (2009, p. 8) stated that "Growth increases costs of financial distress, reduces free cash flow problems, and exacerbates debt-related agency problems". Growth of firms will lead to a greater value on stakeholder co-investment.

Trade off theory perspective predicts that the leverage will be lower in growing company. "Expected future growth should thus be negatively related to long-term debt levels (Titman & Wessels, 1988, p. 4)".

Assuming with fixed profitability, firms with more investments to support growth, should accumulate more debt (Frank & Goyal, 2009, p. 8). Consequently, growth opportunities and leverage are positively related under the pecking order theory. Capital structure from market timing point of view, a higher market-to-book ratio, as company growth, should reduce leverage as firm exploit equity mispricing through equity issuances (Frank & Goyal, 2009, p. 8).

Determinants of Capital Structure from External

There are 10 external forces that affect organization, one of them is economic forces which include Gross Domestic Product (GDP) trends, inflation rates, monetary and fiscal policies, and stock market trends (David & David, 2017, p. 221). Previous research recognized below factors are determinants of capital structure from outside the company.

a) Stock market condition

Welch (2004, p. 117) in the research found that "overall stock market level has a similarly long-lived effect on the aggregate corporate debt ratio, just as it is the major influence in determining the debt ratio of firms in cross section.". In the same research, within five-year horizons, stock return drove debt ratio changes was the strongest influence (Welch, 2004).

Market timing theories make similar forecast, which effects come from management actively timing equity markets to ride the momentum and take benefit of mispricing (Frank & Goyal, 2009).

Stock market condition will lead to different level of leverage from several capital structure theories. According to Frank and Goyal (2009) "Static trade-off models would predict that low market debt ratios ought to encourage a company to issue debt in an attempt to move towards the optimum, which would have the effect of raising book debt ratios following high stock returns". Though in contrary, market timing theory predict book to debt ratio will lower when the equity price is higher as firms issue equity to ride the momentum. Main finding of research by Baker and Wurgler (2002) shown that "low leverage firms are those that raised funds when

their market valuations were high, as measured by the market-to-book ratio, while high leverage firms are those that raised funds when their market valuations were low".

b) Debt market condition

Company can also anticipate inflation as indicator of debt market yield. As the inflation rise will push the interest up, according to Taggart (1985) "an increase in anticipated inflation will increase all interest rates by (approximately) the increase in the expected inflation rate". Furthermore, in the perspective of trade of theory, Taggart (1985) said that inflation that push borrowing cost up will increase the real value of the interest tax deduction on debt.

If expected inflation is higher in the future, it will impact to cost of debt increase. According to Frank and Goyal (2009) "Market timing in debt markets also results in a positive relation between expected inflation and leverage if managers issue debt when expected inflation is high relative to current interest rates". Firms tends to issue more debt if the interest are low relative to historical levels (Barry, Mann, Mihov, & Rodriguez, 2008).

c) Macroeconomic condition

Gross Domestic Product (GDP) can influence debt issuance. "During expansions, stock prices go up, expected bankruptcy costs go down, taxable income goes up, and cash increases. Thus, firms borrow more during expansions (Frank & Goyal, 2009)". During economy growth will increase company's asset value, therefore the collateral value for debt also increase. In contrary, from pecking order perspective, economic growth will lead to less leverage. According to Frank and Goyal (2009, p. 11):

"Leverage should decline during expansions since internal funds increase during expansions, all else equal. If corporate profits have shown an increase in the recent past, agency problems between shareholders and managers are less severe. Consequently, firms should issue less debt."

Research Methods

This is a quantitative research, which would like to test some determinant factors that influence capital structure of company in Indonesia represent by LQ45 members. There are internal determinant factors and also external determinant factors. LQ45 index member has benefit to obtain more capital through stock market since they are list of most heavily traded stocks on the Indonesia Stock Exchange.

The internal determinant factors are profitability, firm size, and growth. And for external determinant factors are stock market condition, debt market condition, and macroeconomic condition. The research will explain further which factors give significant influence to capital structure choice of LQ45 company member. Further, the research will explain whether the company capital structure get more influence from internal external factors.

Findings

The research has 9 (nine) independent variables and 1 (one) dependent variable. The whole 9 variables consist of data consist of company' financial data or financial ratio and 1 variables consist data financial leverage of the company that will represent capital structure of the company.

Table 1: Descriptive Statistics

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Company Profitability	90	2.3407	54.1817	15.654799	10.5651044
Firm Size	90	2611048	676738753	106498023.31	136231545.016
Change in Assets	90	-10.5160	82.6152	15.653001	16.2015894
Capital to Assets Ratio	90	.1734	28.0638	9.419761	7.2713219
Annual stock return	90	-65.0000	310.1942	37.915156	66.2679336
Annual Market Index Return	90	-50.6375	86.9810	24.167187	33.4439001
1yr vs 10y yield spread	78	.9154	3.8415	1.967269	.9832740
Average Lending Rate	90	13.6248	19.7042	15.654027	1.5518708
Annual GDP Growth	90	2.88	7.40	5.6940	1.14184
Leverage Debt to Total Asset	90	.0000	55.5864	20.958909	15.3756155
Valid N (listwise)	78				

Source: SPSS 23 Output

Based on above table, 6 (six) companies that listed in LQ45 index from 2002 – 2016 have average debt to total asset 20,95%, the 6 (six) companies that consecutively listed in LQ45 during 2002 – 2016, in average 79,05%, utilize equity as source of funding. At the minimum, debt to total asset ratio is 0 while the maximum value of debt to total asset ratio 55,58%. There is a company which did not have debt in certain period, all the funding coming from equity. Astra Agro Lestari Tbk, has 0 (zero) debt in financial year 2008 to 2011. While the highest debt to asset ratio happened in United Tractors Tbk in financial year 2002, with debt to total asset ratio 55,58%. Standard deviation of debt to equity ratio is 15.37%, which represent the variety of financial leverage level of 6 (six) companies during 2002 – 2016.

Company profitability variable is ratio of operating income to asset. In average, from 6 companies listed consecutively in LQ45 Index during 2002 – 2016, have ratio 15,65%. The minimum company profitability ratio is 2.34% happened at Bank Central Asia Tbk in 2003 while the maximum value is 54,18% happened at Astra Agro Lestari Tbk in 2007.

Firm size variable coming from the value of company' assets. The average of firm size of research population is IDR 106.49 trillion. Standard deviation of firm size data is IDR 136,23 trillion. The minimum firm size is IDR 2,61 trillion happened at Astra Agro Lestari Tbk in 2002 while the maximum firm size in the research population happened at Bank Central Asia Tbk in 2016 with firm size IDR 676,73 trillion.

Change in asset variable is value to measure the change in assets from previous year. Average change in asset of the research population is 15,65%. The assets of the company not always growth in yearly basis. The minimum change in assets happened at Indofood Sukses Makmur Tbk in 2016 with decreasing asset value -10,51% while the highest assets growth is 82,6% experienced by Indofood Sukses Makmur Tbk in 2007.

Capital to asset ratio variable is ratio of capital expenditure to total asset. The average capital to asset ratio of the company of this research is 9.41%. The minimum value of capital to asset ratio is 0.17% experienced by Bank Central Asia Tbk in 2003 while the highest capital to asset ratio is 28% happened at United Tractors Tbk in 2008.

Annual stock return variable capture the movement of yearly stock price for each company in the research population. The average stock price movement is 37,91%. The minimum value of annual stock return experienced by Astra Agro Lestari Tbk with value -65% in 2008 while the maximum annual stock return gained by 310,19% happened at United Tractors Tbk in 2003.

The last 4 variables are macro economic data, which applied in all research population in respective years. Annual market index return variable within 2002 – 2016 has average value 24,16%. Annual market index return has minimum value -50,63% happened in 2008 while maximum value is 86,98% happened in 2009.

1 year versus 10 year bond yield spread variable also applied for the whole research population in respective years. The average of variable is 1.96% with minimum value is 0,91% (2016) and maximum value is 3,84% (2005). Average lending rate variable has mean value 15,65% with minimum value 13,62% and maximum value 19,7%. Annual GDP growth within 2002 to 2016 has average value 5,69% with minimum value 2,88% and maximum value 7,4%.

There is an incomplete data during the research period. 1-year yield versus 10-year yield spread only available between 2004 – 2016. There are 12 incomplete cell due to the yield spread data is used for 6 companies measurement in respective year.

Multicollinearity is to check independency of each independent variable to others. According to Allen (1997, p. 176) "multicollinearity is a high degree of correlation (linear dependency) among several independent variables." In this research, multicollinearity only apply for variables of macro economic such as annual market index return, 1-year versus 10-year yield spread, average lending rate, and GDP growth variable. This four variable has tendency to have high correlation.

In SPSS, one way to check multicollinearity is perform through linier regression function. The test of multicollinearity as follow:

Test with Annual GDP Growth variable as dependent variable.

Table 2: Collinearity Test - Annual GDP Growth as dependent variable

Coefficients[a]			
Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	Average Lending Rate	.660	1.515
	Annual Market Index Return	.705	1.418
	1yr vs 10y yield spread	.806	1.241
a. Dependent Variable: Annual GDP Growth			

Source: SPSS 23 Output

The result of VIF for average lending rate, annual market index return, and 1yr vs 10y yield spread variables are below 3. Collinearity unlikely to exist between the variables.

1. Test with average lending rate as dependent variable.

Table 3: Collinearity Test - Average Lending Rate as Independent variable

Coefficients[a]			
Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	Annual Market Index Return	.864	1.157
	1yr vs 10y yield spread	.863	1.159
	Annual GDP Growth	.967	1.034
a. Dependent Variable: Average Lending Rate			

Source: SPSS 23 Output

From above table, the VIF value of annual market index return, 1yr vs 10y yield spread, and annual GDP growth variables are below 3. Collinearity unlikely to exist between the variables.

2. Test with Annual Market Index Return as dependent variable

Table 4: Collinearity Test - Annual Market Index Return as Independent variable

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	1yr vs 10y yield spread	.772	1.295
	Average Lending Rate	.722	1.386
	Annual GDP Growth	.863	1.158
a. Dependent Variable: Annual Market Index Return			

Source: SPSS 23 Output

From above table, the VIF value of 1yr vs 10y yield spread, average lending rate, and annual GDP growth variables are below 3. Collinearity unlikely to exist between the variables

4.1.1. T-Test (partial test)

The T-Test will check the influence of each independent variable to dependent variable. This test to find out what variables that give influence significantly to capital structure change.

Table 5: t T-Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.347	25.609		.912	.365
	Company Profitability	-.717	.202	-.567	-3.543	.001
	Firm Size	-5.743E-8	.000	-.591	-4.652	.000
	Change in Assets	.016	.090	.019	.176	.861
	Capital to Assets Ratio	.206	.311	.110	.662	.510
	Annual stock return	-.003	.034	-.014	-.090	.929
	Annual Market Index Return	-.006	.066	-.014	-.088	.930
	1yr vs 10y yield spread	.477	1.692	.034	.282	.779
	Average Lending Rate	.779	1.831	.055	.425	.672
	Annual GDP Growth	-.198	1.343	-.016	-.148	.883
a. Dependent Variable: Leverage Debt to Total Asset						

Source: SPSS 23 Output

From above table, we can conclude that only 2 variables that has significant influence to leverage: company profitability and firm size. Company profitability has sig score 0.001 (lower than 0.05). H_0 rejected, then the company profitability has significant influence to capital structure. Firm size has sig score 0.000 (lower than 0.05). H_0 rejected, then the firm size has significant influence to leverage.

Beside the two variables above that has significant influence to capital structure change, there are seven variables which did not have significant influence to capital structure or leverage level. Change in assets variable has sig score 0.861 (higher than 0.05). H_0 accepted, then change in assets has less significant influence to leverage. Capital to assets ratio variable has sig score 0.510 (higher than 0.05). H_0 accepted, then capital to assets ratio has less significant influence to leverage. Annual stock return variable has significant score 0.929. The null hypothesis is accepted, then annual stock return has less significant influence to leverage.

Annual market index return has significant score 0.930 (higher than 0.05). The null hypothesis is accepted, then annual market index return has less significant influence to leverage. 1-year and 10-year yield spread variable has sig score 0.779 (higher than 0.05). H_0 accepted, then 1yr and 10yr yield spread has less significant influence to leverage. Average lending rate has sig score 0.672 (higher than 0.05). H_0 accepted, then average lending rate has less significant influence to leverage. And, annual

GDP growth has sig score 0.883 (higher than 0.05). H_0 accepted, then annual GDP growth has less significant influence to leverage.

Conclusion

This research found that, the 6 six companies that listed in LQ45 Index during 2002 to 2016 response 9 (nine) capital structure determinant factors significantly. The determinants: Annual GDP Growth, Capital to Assets Ratio, Annual stock return, Change in Assets, 1yr vs 10y yield spread, Average Lending Rate, Firm Size, Company Profitability, Annual Market Index Return has significant influence to financial leverage. This shows that the company in Indonesia already consider some determinants factors and adjust their capital structure based on the condition of determinants.

In the other hand, only 2 (two) variables that have significant correlation to financial leverage out of 9 (nine) independent variables that highlighted by this research. Only profitability and firm size that has significant relationship to financial leverage, while the other 7 variables has insignificant relationship to financial leverage. The prediction of why not all variables become significant predictors to financial leverage are:

1. The companies has high ratio of return earning. So the company can funded their own operation without depend on additional debt or equity.
2. The need of funding not depend on market condition, but depend on corporate strategy. So not necessarily the company will raise funding through equity when the stock price were raise debt when the interest rate were low.

From the internal and external factors point of view, the capital structure decisions are more based on internal factors. There are 2 (two) out of 4 (four) variables that include in internal factors that has significant influence to financial leverage. While there are no variables that included in external factors has significant influence to financial leverage.

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